

1998 DOMESTIC RESIDUE PROGRAM RESULTS

ANTIBIOTICS

In all the tables in this section and in Appendix III, the number of violations or positives reflects the number of animals (or the number of composite samples in the case of poultry) that were found to contain at least one violative or detectable residue.

Bacitracin	Hygromycin	Novobiocin
Chlortetracycline	Neomycin	Streptomycin
Erythromycin	Oxytetracycline	Tetracycline
Gentamicin	Penicillins	Tylosin

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses*	442/20	4.5	2.8-6.9	10/0
Bulls	244/0	0	0.0-1.5	
Beef cows	464/0	0	0.0-0.8	
Dairy cows	479/2	0.4	0.0-1.5	
Heifers	299/1	0.3	0.0-1.8	
Steers	479/1	0.2	0.0-1.2	
Bob calves	410/2	0.5	0.1-1.8	
Formula-fed calves	510/4	0.8	0.2-2.0	
Non-formula calves	256/3	1.2	0.2-3.4	
Heavy calves	286/3	1.0	0.2-3.0	
Cattle				102/3

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ANTIBIOTICS, continued

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Sheep	294/0	0	0.0-1.2	
Lambs	348/0	0	0.0-1.1	
Sheep/Lambs				5/0
Goats	324/0	0	0.0-1.1	
Market hogs	463/0	0	0.0-0.8	
Boar/Stags	220/1	0.5	0.0-2.5	
Sows	493/0	0	0.0-0.7	
Swine				49/2
Young chickens	429/0	0	0.0-0.9	
Mature chickens	234/0	0	0.0-1.6	
Chickens				4/0
Young turkeys	468/0	0	0.0-0.8	
Mature turkeys	162/0	0	0.0-2.3	
Turkeys				22/0
Ducks	525/0	0	0.0-0.7	
Rabbits				26/3
Other				1/0

*

Multiple violations were found in some animals

1998 DOMESTIC RESIDUE PROGRAM RESULTS

ANTIBIOTICS, continued

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Horses: 15 streptomycin, 6 penicillin
Steers: 1 gentamicin
Heifers: 1 gentamicin
Dairy cows: 2 gentamicin
Bob calves: 1 neomycin, 1 gentamicin
Formula-fed veal: 4 gentamicin
Non-formula veal: 1 neomycin, 2 gentamicin
Heavy calves: 3 gentamicin
Boars: 1 penicillin

Enforcement Testing:

Cattle: 1 tylosin, 1 oxytetracycline, 1 penicillin
Swine: 2 penicillin
Rabbits: 3 streptomycin

In-plant Tests

Calf Antibiotic and Sulfonamide Test (CAST): There were 89 violations found in the 8958 animals tested**

CAST SPECIFIC VIOLATIVE RESIDUES

Cattle: 4 penicillin, 6 streptomycin, 6 tetracycline, 1 tylosin, 3 oxytetracycline, 13 neomycin, 28 gentamicin, 2 lincomycin, 7 sulfadimethoxine, 11 sulfamethazine, 8 sulfamethoxazole

Swab Test on Premises (STOP) [Includes samples tested for sulfonamides	Enforcement Testing: Analyses/Violations
Horse	70/0
Bull	418/1
Steer	1,796/4
Beef cow	8,185/35

1998 DOMESTIC RESIDUE PROGRAM RESULTS

ANTIBIOTICS, continued

Heifer	668/9
Swab Test on Premises (STOP) [Includes samples tested for sulfonamides]	Enforcement Testing: Analyses/Violations
Dairy cow	20,336/171
Formula fed calves	436/2
Non formula fed calves	139/6
Bob veal	30/0
Heavy Calves	53/3
Calves	8/0
Mature sheep	21/0
Lambs	727/0
Goats	88/0
Market hogs	2,919/3
Boar/stags	125/1
Sows	857/3
Ostrich	757/0
TOTAL STOP	37,633/238

STOP SPECIFIC VIOLATIVE RESIDUES

Bulls: 1 oxytetracycline

Steer: 1 penicillin, 2 tilmicosin, 1 sulfamethazine

Beef cows: 21 penicillin, 1 streptomycin, 1 tetracycline, 3 oxytetracycline, 3 gentamicin, 1 tilmicosin, 4 sulfadimethoxine, 1 sulfamethazine

Heifers: 3 penicillin, 1 streptomycin, 3 oxytetracycline, 1 tilmicosin, 1 sulfamethazine

Dairy cows: 81 penicillin, 15 streptomycin, 7 tetracycline, 1 tylosin, 1 neomycin, 14 oxytetracycline, 18 gentamicin, 2 lincomycin, 5 tilmicosin, 18 sulfadimethoxine, 9 sulfamethazine

Formula fed veal: 1 streptomycin, 1 gentamycin

Non formula fed veal: 1 tetracycline, 2 oxytetracycline, 3 gentamycin

Heavy calf: 1 penicillin, 1 neomycin, 1 oxytetracycline

1998 DOMESTIC RESIDUE PROGRAM RESULTS

ANTIBIOTICS, continued

Market hogs: 3 sulfamethazine

Boar/Stag: 1 penicillin

Sows: 3 penicillin

Fast Antimicrobial Screen Test (FAST) [Includes samples tested for sulfonamides also]	Enforcement Testing: Analyses/Violations
Bulls	544/2
Steers	950/4
Beef cows	9,303/28
Heifers	760/10
Dairy cows	83,729/688
Bob calves	12,482/62
Formula fed calves	152/3
Non formula fed calves	43/0
Heavy Calves	42/1
Market hogs	3/0
Sows	12/0
TOTAL FAST	108,020/798

FAST SPECIFIC VIOLATIVE RESIDUES

Bulls: 1 penicillin, 1 sulfamethazine

Steers: 2 penicillin, 1 oxytetracycline, 1 sulfadimethoxine

Beef cows: 15 penicillin, 3 streptomycin, 1 oxytetracycline, 6 gentamicin, 1 tilmicosin, 1 sulfadimethoxine, 1 sulfamethazine

Heifer: 3 penicillin, 1 streptomycin, 1 gentamycin, 4 tilmicosin, 1 sulfamethazine

Dairy cows: 266 penicillin, 58 streptomycin, 10 tetracycline, 2 tylosin, 1 erythromycin, 10 neomycin, 24 oxytetracycline, 167 gentamicin, 7 tilmicosin, 120 sulfadimethoxine, 22 sulfamethazine, 1 sulfamethoxazole

1998 DOMESTIC RESIDUE PROGRAM RESULTS

ANTIBIOTICS, continued

Bob veal: 6 penicillin, 10 streptomycin, 4 tetracycline, 2 neomycin, 3 oxytetracycline, 17 gentamycin, 4 sulfadimethoxine, 9 sulfamethazine, 7 sulfamethoxazole

Formula-fed veal: 1 streptomycin, 1 tylosin, 1 gentamycin,

Heavy calves: 1 tilmicosin

SULFONAMIDES

Sulfachlorpyridazine
Sulfadimethoxine

Sulfamethazine
Sulfathiazole

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses	226/0	0	0.0-1.6	
Bulls	247/0	0	0.0-1.5	
Beef cows	306/0	0	0.0-1.2	
Dairy cows	310/1	0.3	0.0-1.8	
Heifers	234/0	0	0.0-1.6	
Steers	321/1	0.3	0.0-1.7	
Bob calves	407/4	1.0	0.3-2.5	
Formula-fed calves	327/1	0.3	0.0-1.7	
Non-formula calves	258/2	0.8	0.1-2.5	
Heavy calves	223/0	0	0.0-1.6	
Cattle				9/0
Sheep	93/0	0	0.0-3.9	

1998 DOMESTIC RESIDUE PROGRAM RESULTS

SULFONAMIDES, continued

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Lambs	103/0	0	0.0-3.5	
Sheep/Lambs				4/0
Goats	327/0	0	0.0-1.1	
Market hogs	485/2	0.4	0.0-1.5	
Boars/Stags	217/2	0.9	0.1-3.3	
Sows	319/3	0.9	0.2-2.7	
Swine				17/11
Young chickens	278/0	0	0.0-1.3	
Mature chickens	233/0	0	0.0-1.6	
Chickens				1/0
Young turkeys	307/0	0	0.0-1.2	
Mature turkeys	163/0	0	0.0-2.2	
Turkeys				1/0
Ducks	268/0	0	0.0-1.4	

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Steer: 1 sulfamethazine

Dairy cows: 1 sulfadimethoxine

Bob calves: 2 sulfadimethoxine, 1 sulfamethazine, 1 sulfamethoxazole

Formula-fed veal: 1 sulfadimethoxine

1998 DOMESTIC RESIDUE PROGRAM RESULTS

SULFONAMIDES, continued

Non-formula veal: 2 sulfadimethoxine

Market hogs: 2 sulfamethazine

Boars: 1 sulfadimethoxine, 1 sulfamethazine

Sows: 1 sulfadimethoxine, 2 sulfamethazine

Enforcement Testing:

Swine: 11 sulfamethazine

SULFA-ON-SITE (SOS)

Of the 11,109 swine that were tested, 28 animals contained violative levels of sulfamethazine.

ARSENIC

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses	91/0	0	0.0-4.0	
Bulls	103/0	0	0.0-3.5	
Beef cows	90/0	0	0.0-4.0	
Dairy cows	95/0	0	0.0-3.8	
Heifers	92/0	0	0.0-3.9	
Steers	93/0	0	0.0-3.9	
Bob calves	87/0	0	0.0-4.2	
Formula-fed calves	100/0	0	0.0-3.6	

1998 DOMESTIC RESIDUE PROGRAM RESULTS

ARSENIC, continued

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Non-formula fed calves	50/0	0	0.0-7.1	
Heavy calves	84/0	0	0.0-4.3	
Cattle				1/0
Sheep	90/0	0	0.0-4.0	
Lambs	108/0	0	0.0-3.4	
Goats	247/0	0	0.0-1.5	
Market hogs	239/0	0	0.0-1.5	
Boars/Stags	71/0	0	0.0-5.1	
Sows	90/0	0	0.0-4.0	
Young chickens	434/0	0	0.0-0.8	
Mature chickens	95/0	0	0.0-3.8	
Chickens				4/0
Young turkeys	236/1	0.4	0.0-2.3	
Mature turkeys	47/0	0	0.0-7.6	
Turkeys				3/0

1998 DOMESTIC RESIDUE PROGRAM RESULTS

CHLORINATED HYDROCARBONS & ORGANOPHOSPHATES (CHC/COP'S)

Aldrin	Chlorpyrifos	Endrin
Benzene Hexachloride (BHC)	Coumaphos and	Heptachlor and
Carbophenothion (trithion)	oxygen analog	heptachlor epoxide
Chlordane (technical)	DDT and	Hexachlorobenzene (HCB)
2-Chloro-1(2,4,-	metabolites	Lindane
dichlorophenyl)vinyl	Dieldrin	Linuron
diethyl phosphate	Dodecachlorooctahydro-	Methoxychlor
[chlorfenvinphos, supona]	1,3,4-metheno-2H-	Phosalone
2-Chloro-1-(2,4,5-	cyclobuta(cd)pentale	Polybrominated biphenyls
trichlorophenyl)vinyl	[mirex]	Polychlorinated biphenyls
dimethyl phosphate	Endosulfan	
[stirofos, gardona]		

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses	467/0	0	0.0-0.8	6/0
Bulls	233/0	0	0.0-1.6	
Beef cows	303/0	0	0.0-1.2	
Dairy cows	228/0	0	0.0-1.6	
Heifers	241/0	0	0.0-1.5	
Steers	307/0	0	0.0-1.2	
Bob calves	204/0	0	0.0-1.8	
Formula-fed calves	256/0	0	0.0-1.4	
Non-formula calves	182/0	0	0.0-2.0	
Heavy calves	265/1	0.4	0.0-2.1	
Cattle				12/0

1998 DOMESTIC RESIDUE PROGRAM RESULTS

CHCs/COPs, continued

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Sheep	310/0	0	0.0-1.2	
Lambs	260/0	0	0.0-1.4	
Goats	492/1	0.2	0.0-1.1	
Market hogs	306/0	0	0.0-1.2	
Boars/Stags	233/2	0.9	0.1-3.1	
Sows	313/0	0	0.0-1.2	
Swine				28/0
Young chickens	268/0	0	0.0-1.4	
Mature chickens	94/0	0	0.0-3.8	
Young turkeys	245/0	0	0.0-1.5	
Mature turkeys	145/0	0	0.0-2.5	
Ducks	261/0	0	0.0-1.4	

Eggs were added to the National Residue Program in October, 1995. In 1998, 359 samples were analyzed for chlorinated hydrocarbons and chlorinated organophosphates. No detectable residues were found in 1998.

SPECIFIC VIOLATIVE RESIDUES

Monitoring:

Heavy calves: 1 DDT

Goats: 1 chlordane

Boars: 1 chlordane, 1 pentachloroaniline

1998 DOMESTIC RESIDUE PROGRAM RESULTS

HALOFUGINONE

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Young chickens	284/0	0	0.0-1.3	
Mature chickens	233/0	0	0.0-1.6	
Chickens				2/0
Young turkeys	238/0	0	0.0-1.5	
Mature turkeys	126/0	0	0.0-2.9	
Turkeys				1/0

IVERMECTIN

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Horses	292/2	0.7	0.1-2.5	
Bulls	257/2	0.8	0.1-2.8	
Beef cows	227/0	0	0.0-1.6	

1998 DOMESTIC RESIDUE PROGRAM RESULTS

IVERMECTIN, continued

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Dairy cows	312/0	0	0.0-1.2	
Heifers	95/0	0	0.0-3.8	
Bob calves	85/0	0	0.0-4.2	
Steers	312/0	0	0.0-1.2	
Formula-fed calves	249/0	0	0.0-1.5	
Non-formula calves	181/0	0	0.0-2.0	
Heavy calves	213/1	0.5	0.0-2.6	
Cattle				4/0
Sheep	198/0	0	0.0-1.8	
Lambs	268/1	0.4	0.0-2.1	
Sheep/Lambs				17/0
Goats	322/2	0.6	0.1-2.2	
Market hogs	240/0	0	0.0-1.5	
Boar/Stags	182/0	0	0.0-2.0	
Sows	239/0	0	0.0-1.5	
Swine				3/0

1998 DOMESTIC RESIDUE PROGRAM RESULTS

CARBADOX

(Non-violative positives are reported in Appendix III)

Slaughter Class	Monitoring			Enforcement Testing
	Analyses/ Violations	Percent Violative	95 percent Confidence Interval	Analyses/ Violations
Steers	471/0	0	0.0-0.8	
Heifers	228/0	0	0.0-1.6	
Swine				1/0

TRACE METAL ENFORCEMENT TESTING

One steer, one beef cow, two sheep, and six market hogs were tested for trace metals. There were no violations.

CLENBUTEROL ENFORCEMENT TESTING

Livers from the following animals were analyzed: 6 bovine (unspecified class), 87 steers, 3 bulls, 1 beef cow, 1 heifer, 3 dairy cows, 4 bob veal, 2 sheep, 59 lambs, 3 goats, and 49 market hogs. All samples were negative.

PHENYLBUAZONE ENFORCEMENT TESTING

One steer was analyzed for residues of phenylbutazone. The sample was violative.

1998 DOMESTIC RESIDUE PROGRAM RESULTS

CUMULATIVE TOTALS - BY SLAUGHTER CLASS

Slaughter Class	Monitoring: Analyses	Enforcement Testing: Analyses*
Horses	1,518	16
Bulls	1,084	
Beef cows	1,390	
Dairy cows	1,424	
Heifers	1,189	
Steers	1,983	
Bob calves	1,193	
Formula-fed calves	1,442	
Non-formula calves	927	
Heavy calves	1,071	
Cattle		236
Sheep	985	
Lambs	1,087	
Sheep/Lambs		89
Goats	1,712	3
Market hogs	1,733	
Boars/Stags	923	
Sows	1,454	
Swine		153
Young chickens	1,693	
Mature chickens	889	
Chickens		11
Young turkeys	1,494	

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CUMULATIVE TOTALS, continued

Slaughter Class	Monitoring: Analyses	Enforcement Testing: Analyses*
Mature turkeys	643	
Turkeys		27
Ducks	1,054	
Rabbits		26
Other		1
TOTAL	26,888	562*

* Domestic follow-up and inspector-generated sampling; does not include in-plant testing

CUMULATIVE TOTALS - BY COMPOUND OR CLASS

Compound Class	Monitoring: Analyses	Enforcement Testing: Analyses
Antibiotics	7,829	154,830 ¹
Sulfonamides	5,652	11,141 ²
Arsenic	2,542	8
CHC/COP's	5,613	46
Ivermectin	3,672	24
Carbadox	699	1
Halofuginone	881	3
Clenbuterol		218
Phenylbutazone		1
Metals		10
TOTAL	26,888	166,282

¹ Includes CAST, FAST, STOP data and inspector-generated samples

1998 DOMESTIC RESIDUE PROGRAM RESULTS

CUMULATIVE TOTALS, continued

² Includes SOS data and inspector-generated samples

1998 DOMESTIC RESIDUE PROGRAM RESULTS

STATISTICAL TABLE: NUMBER OF SAMPLES REQUIRED TO ENSURE DETECTION OF A PROBLEM THAT AFFECTS A GIVEN PERCENTAGE OF THE SAMPLED POPULATION

Percentage Violative in Sampled Population	Probability of Detection (Percent)			
	90	95	99	99.9
	Samples Required			
10	22	29	44	66
5	45	59	90	135
1	230	299	459	688
0.5	460	598	919	1,379
0.1	2,302	2,995	4,603	6,905
0.05	4,605	5,990	9,209	13,813